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INITIAL GEOLOGIC MAPPING OF THE AC-H-14 YALODE QUADRANGLE OF CERES USING DAWN SPACECRAFT DATA

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We are conducting a geologic mapping investigation of the Ac-H-14 Yalode Quadrangle (21-66°S, 270-360°E) of Ceres to examine its surface geology and geologic history. At the time of this writing, geologic mapping has been performed on Dawn Framing Camera (FC) mosaics from the Approach phase (up to 1.3 km/pxl) and Survey orbit (415 m/pxl); datasets used include grayscale and color images and digital terrain models derived from stereo images. In Fall 2015 we intend to use images from the High Altitude Mapping Orbit (140 m/pxl) to refine mapping, followed by Low Altitude Mapping Orbit (35 m/pxl) images in January 2016.

The Yalode Quadrangle is dominated by the ~300-km diameter impact basin Yalode and includes rugged and smooth terrains to the east. Yalode basin has a variably preserved rim, which is continuous and sharply defined to the north/northwest and is irregular or degraded elsewhere. This structure may also have an interior ring. The basin floor includes hummocky and smooth areas (some bounded by scarps), crater chains, and a lineated zone. High-resolution images will be used to search for volcanic features on the basin floor, as well as in association with basin structures. Yalode basin and its floor deposits appear to have been strongly affected by the Urvara impact to the west. Impact craters in Yalode Quadrangle display a range of preservation states. Degraded features, including Yalode basin and numerous smaller craters, exhibit subdued rims, lack discrete ejecta deposits, and have infilled interiors. More pristine features (including the large unnamed basin in the SE corner of the quadrangle and craters on Yalode basin floor) have well-defined, quasi-circular forms with prominent rims and in some cases discernible ejecta. Some of these craters have bowl-shaped interiors and others contain hills or mounds on their floors similar to central peaks, similar in morphology to craters surrounding Yalode. This suggests craters in Yalode, and in this quad generally, have morphologies that are comparable to those on rocky or icy/rocky bodies.

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Session No. 308--Booth# 351

T172. Geology of Dwarf Planets: First Results from NASA's *Dawn* Mission to Ceres (Posters)
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Exhibit Hall (Baltimore Convention Center)

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